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An experiment with 356 navy recruits compared the effects on reading retention of adjunct (interspersed) questions generated by four different procedures: human linguistic processing, the AUTOQUEST computer program, and two types of cloze algorithms. Results showed that cloze questions interfered with retention and that direct improvement effects from AUTOQUEST were as large as those from human-generated questions. No indirect effects of human or computer-generated questions were observed. Further research is recommended to increase the instructional relevance of AUTOQUEST questions and to test their effectiveness in an on-line situation with feedback. (Author)

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READING RETENTION AS A FUNCTION OF METHOD FOR GENERATING INTERSPERSED QUESTIONS

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An experiment with 356 Navy recruits compared the effects on reading retention of adjunct (interspersed) questions generated by four different procedures: human linguistic processing, the AUTOQUEST computer program, and two types of cloze algorithms. Results showed that cloze questions interfered with retention and direct improvement effects from AUTOQUEST were as large as those from human-generated questions. No indirect effects of human or computer questions were observed. Further research is recommended to increase the

instructional relevance of AUTOQUEST questions and to test their effectiveness in an on-line situation with feedback.

FOREWORD

This development was conducted in support of Advanced Development Project Z0108 (Education and Training Development), Subproject Z0108-PN.32 (Advanced Computer-Based System for Instructional Dialogues) under the mission sponsorship of the Chief of Naval Operations (OP-099).

The purpose of this subproject is to develop methods of computer-generated instruction that will reduce the cost of lesson material preparation while improving the adaptability of instruction to the individual student. One possibility is the automation of instructional materials production. The automatic question generating (AUTOQUEST) system is the first step in this development. This report describes an empirical study of the effects of AUTOQUEST on retention of expository material, as compared with other techniques of generating interspersed questions. Its goal is to determine the feasibility of computer-generated instruction techniques for Navy training in operational environments.

Appreciation is expressed to Dr. J. Dexter Fletcher and Dr. William Montague for their many helpful suggestions.

J. J. CLARKIN
Commanding Officer

SUMMARY

Problem

Technical training, on-the-job independent study, and extraction of job relevant information from reference materials require the student to learn by reading text. Retention from reading text often is not as great as it should be. Previous research has shown that retention is improved if students are required to answer questions about the text after reading each page. In an attempt to lower the cost of generating questions for Navy training, a computer-aided instructional system called AUTOQUEST has been developed to automatically generate questions from text.

Objective

The objective of this effort was to determine if computer-generated questions are as effective as human-generated and cloze-algorithm questions in improving reading retention.

Approach

A total of 356 Navy recruits were assigned to one of four experimental groups or a control group. All groups studied a 2320-word passage. The experimental groups were used to test the effects on reading retention of adjunct questions generated by humans, the AUTOQUEST computer program, or two types of cloze algorithms. A criterion test was administered to all groups after completion of study materials.

Findings

The performance of the human-generated and AUTOQUEST questions groups was similar. Both groups scored about a half standard deviation better on repeated questions than the control group and no better than the control group on new criterion questions. The performance of groups with cloze questions was worse on new questions and no better on repeated questions than that of the control group.

Conclusions

Cloze methods for generating questions, which are less sophisticated than AUTOQUEST, are likely to interfere with learning. AUTOQUEST seems to be as effective as human question generation in this experiment, but the failure of this study to find indirect effects on new questions casts doubt on the utility of interspersing questions to improve retention. Practical applications of AUTOQUEST will depend on the direct effects of inserted questions or on the feedback effects from the grading of student responses.

Recommendations

Further research is recommended (1) to increase the number of grammatical questions that AUTOQUEST can generate, (2) to develop methods for selecting instructionally relevant questions, and (3) to test the instructional effectiveness of AUTOQUEST in an on-line situation with feedback.

The potential benefits and cost savings to the Navy from a successful AUTOQUEST system could be very large. The principal advantage of AUTOQUEST is that it can be economically applied to almost all situations involving study of written materials, while conventional computer-assisted instruction requires expensive human labor for the development of frames. Continued R&D of AUTOQUEST and related work in natural language processing are therefore recommended. If the educational effectiveness of AUTOQUEST is established, conversion to a minicomputer and operational implementation should be considered.

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INTRODUCTION

Problem

Naval training techniques must keep up with changing requirements. As new weapon systems are introduced, curricula must be revised, new manuals prepared, and instructors trained. Previously trained personnel often are expected to keep up with new developments by independent study of technical manuals, without receiving any additional formal training. Sophisticated instructional technology would be desirable but is seldom available. Programmed instruction and computer-assisted instruction require long lead times to develop. Some method is needed to assist personnel on the job in their independent student and review of technical materials.

Background

A number of experiments have shown that reading retention is enhanced if people are required to answer "adjunct" questions that are interspersed with the text. Rothkopf (1966) distinguished two kinds of effects: indirect and direct. A direct effect is the change in the ability to answer a criterion question that is closely related or identical to an adjunct (interspersed) question. An indirect effect is the change in ability to answer criterion questions about parts of the text different from those addressed by the adjunct question. He coined the word "mathemagenic" to refer to the general attention-like effects on studying behavior that are associated with the indirect effects of adjunct questions.

The literature is inconsistent regarding these indirect effects. Anderson and Biddle (1975) in their survey of relevant studies, found that only 26 out of 39 had positive indirect effects--not all of which were statistically significant--compared to 37 out of 40 having positive direct effects. The direct effects were generally about four times as great as the indirect effects when present. Anderson and Biddle also presented some experiments of their own, which found that providing verbatim questions was more effective in improving retention than paraphrase questions. Finally, Rickards, Anderson, and McCormick (1976) found no positive indirect effects when questions were phrased in non-subject-specific common words and a slight negative effect when questions concerned numbers.

A method, called AUTOQUEST, of automatically generating questions from text by computer was developed by Wolfe (1975). AUTOQUEST (for automatic question generation) is an experimental computer-based educational system for assisting independent study of written text.

The AUTOQUEST system presents standard reference text, a paragraph at a time, to a student at a computer display terminal. It then automatically generates and asks him questions about it based on a randomly selected sentence contained in the paragraph. If the student's answer contains a certain percentage of the words in that original sentence, he is told his answer is correct and he goes on to the next paragraph. If the student's answer is judged as incorrect, the same paragraph is displayed again and another question is generated.

Another instructional system (another method of generating verbatim questions) is the "cloze" technique (Taylor 1953, 1957), which has a long history of use in reading research as a method of measuring reading comprehension and readability, and as a teaching aid (Jongsman, 1971). The basic principle of the cloze technique is to generate verbatim sentence-completion questions by selecting sentences from the text and omitting every nth word, where n is some integer greater than one.

According to Craik and Lockhart (1972), the phenomena of short-term and long-term memory are the result of different "levels of processing." They state the information processed at a higher level can be retrieved more easily after a long interval than information processed at a lower level. Hence, it follows that (1) training will be improved if the student can be stimulated to process information at a high level during study, and (2) human-generated questions, which normally involve paraphrases or inferences from the text, may stimulate the reader to process the material at a higher level than questions that are generated by simple grammatical transformations, as in AUTOQUEST. Further, since verbatim sentence-completion questions, such as those generated by the cloze algorithm, can be answered with no semantic or syntactic processing, they might be expected to stimulate only the lowest level of processing on the part of the reader.

Purpose

The purpose of the present research is to compare the effectiveness of AUTOQUEST adjunct questions with that of human-generated and cloze-algorithm questions in improving reading comprehension in an off-line situation, without the feedback features of AUTOQUEST. The research focuses on the issue of whether the indirect and direct effects of AUTOQUEST are as large as those of human-generated and cloze technique questions.

In this regard, an interesting research problem is whether the much simpler cloze algorithm for generating questions might not work equally as well as AUTOQUEST in facilitating learning from text. If both systems are equally effective in facilitating learning, the results would have important theoretical implications for the "levels of processing" theory and important practical benefits in reducing the costs of generating interspersed questions.

METHOD

Materials

The text material provided to all subjects was originally developed by Anderson and Myrow (1971). It consisted of an 11-page, 2320-word passage concerning a fictitious African tribe, which was typed double-spaced with each page of text containing two paragraphs. For the four experimental groups, each page of text was followed by a page containing questions concerning the materials on the previous page. A total of 20 questions was provided each group. The questions provided to the Human-generated (H) group were variations on material originally developed by Anderson and Myrow (1971).

For the AUTOQUEST group, 47 questions were generated by running the text through the question-generator subroutine of AUTOQUEST. Seventeen of these questions were rejected by the experimenter because of their ungrammatical or ambiguous nature. The remaining 30 questions were partitioned into 11 groups according to the page of text they referred to. From each group, questions for a total of 20, were randomly selected in an attempt to approximate the cumulative numbers of human-generated questions as much as possible. The complete list of 47 questions is presented in Figure 1. The 17 ungrammatical questions are marked with asterisks and the 20 selected questions with plus signs.

For the two "cloze" groups, questions were generated by randomly selecting, from each page of text, as many sentences as there were human-generated questions taken from that page. For the "short-cloze" group, a sentence-completion question was generated by omitting every fifth word of the text sentence. For the "long-cloze" group, every other long word (five letters or more) of the text sentence was omitted, thus causing a greater percentage of subject-specific words to be tested.

A two-part, 80-item, multiple-choice criterion test was created to assess the knowledge of the five groups. Part 1 consisted of 20 "new" questions (i.e., they were about sentences other than those used to derive any of the adjunct questions). Part 2 consisted of three sets of 20 questions, which were identical to the adjunct questions but rephrased in multiple-choice format. Questions in these three sets were taken from those generated by human, AUTOQUEST, and long-cloze procedures, respectively. In the latter set, questions were derived by leaving only one word of the original long-cloze sentence to be completed.

Within each set of questions, the order of questions was randomized. The complete criterion test is provided in Appendix B.

After the criterion test was assembled, it was found that some questions overlapped as to content. These questions were eliminated from the scoring keys. Thus, the final set of scales used for scoring the test consisted of 19 items for the new questions (Part 1), 13 for human-generated questions, 11 for AUTOQUEST questions, and 14 for long-cloze questions. The scoring keys are given in Appendix C.

+ 1. What bind their hair with bright woven bands whose colors indicate the wearer's clan membership?
+ 3. What bluffs are primarily limestone?
+ 4. What is passage through the mountains possible by?
+ 5. What does the social organization of the Gruanda center on?
* 6. What is the name of his clan star woven into the given name of each individual to do?
* 7. What is membership in his clan?
* 8. What belonging governs certain forms of social behavior?
* 9. What kind of members light his funeral pyre?
+10. What are only clan members permitted to do?
+11. What do adult men always sleep in although women stay in their individual dwellings?
12. What is the interaction of the various clans in a multitude of tribal affairs governed by?
+13. What is each clan ruled by?
*14. What is there?
+15. What are there four rituals based on?
16. What are tattoos placed on?
*17. What is thereafter the individual at least nominally entitled to do?
*18. What event is his marriage?
+19. What will anyone familiar with the ferocious character of a wild boar appreciate?
*20. What do the last of upon the death of a tribe member?
*21. What is his body placed on?
+22. What is the only ceremony of the Gruandas not related to major events in the lives of persons?
*23. What does every occurrence of a full moon signal a night of festivities during which everyone joins in?
+24. What does overall government over the Gruanda rest with?
*25. What is otherwise the council?
26. What are the executive powers in?
+27. What is the office rotated among while chiefs are not popularly elected?
28. What are separated?
29. What are all matters of dispute referred to?
+30. What is payment usually made in?
+31. What are all necessary chores left to while the men go on hunts?
*32. What animals are various species of birds?
+33. What are birds prized for?
34. What is greatly depreciated if the plumage is slightly damaged?
*35. What has each Gruanda village several community farming plots which are worked by?
+36. What make a flat bread from wheat?
+37. What is milk obtained mainly from?
+38. What do the manufactured products of the Gruanda consist mainly of?
*39. What produced are very much admired although the pottery products are neither particulary colorful?
+40. What are baskets produced by?
*41. What product is bead jewelry?
42. What is the bead jewelry worn by?
43. What is manufacture still not a major factor in?
+44. What is the labor-force recruited from among?
45. What is the unit of exchange used in selling?
*46. What have sold?
47. What is external trade conducted with?

Figure 1. Questions generated by AUTOQUEST. Those rejected by human editor are indicated by an asterisk; and those randomly selected for use; by a plus sign.

Experimental Design

The subjects (356 Navy recruits in their first or second week at the Naval Training Center, San Diego), were randomly assigned either to a no-question (NOQ) control group (N = 74) or to one of four experimental conditions. These four groups were:

1. Human-generated adjunct questions (H) (N = 52).
2. AUTOQUEST-generated adjunct questions (A) (N = 123).
3. Short-cloze generated adjunct questions (SCZ) (N = 51).
4. Long-cloze generated adjunct questions (LCZ) (N = 56).

More subjects were assigned to the AUTOQUEST group than to any other since the main purpose of the study was to compare AUTOQUEST with the other procedures. All subjects were measured on five variables: minutes of study time required, the scores obtained on the "new" questions (Part I of the Criterion Test), and the scores obtained on the three sets of questions repeated from the original human-generated, AUTOQUEST, and long-cloze questions (Part II of the Criterion Test). Of course, the three sets of repeated questions were "new" to four of the five groups and familiar only to that group previously receiving a particular set as adjunct questions. For each variable, a one-way analysis of variance was performed.

Several a priori hypotheses were formulated. On the "new" question test, it was hypothesized that the performance of Group H would be superior to that of Group A, which would be superior to that of Group LCZ, which would be superior to that of group SCZ, which would be superior to that of the control group NOQ. The performance of the LCZ group was expected to exceed that of the SCZ group because long-cloze questions cannot be answered correctly without learning the text, while short-cloze questions sometimes can be answered by using articles or prepositions determined by syntactic constraints. Symbolically, H > A > LCZ > SCZ > NOQ. This is the same order as the level of information processing required to answer the adjunct questions, and is consistent with the Craik and Lockhart (1972) hypothesis.

On the repeated questions, it was hypothesized that the same order would hold except that the group that had seen the questions before would be superior to each of the other groups. That is:

For repeated human questions:	H > A > LCZ > SCZ > NOQ
For repeated AUTOQUEST questions:	A > H > LCZ > SCZ > NOQ
And for repeated cloze questions:	LCZ > SCZ > H > A > NOQ

Procedure

Subjects were tested in groups ranging in size from 40 to 50 on 8 different days. Although attendance at the experiment was mandatory, actual participation was voluntary.

The experimenter provided subjects with a copy of the Privacy Act Statements, one of the five versions of the reading materials and instructions for completing it, and a machine-scorable answer sheet. He then read aloud

(1) the Privacy Act Statement, which emphasized that test results would be kept confidential, would have no effect on individual service records, and would help to improve future Navy training, and (2) the instructions. Finally, he emphasized to the students that it was important to study the material carefully and to answer every question even with a guess. Further, he asked them not to turn back to a page once it had been read. Subjects were told to write the exact time on the last page when they finished, using the large clock provided on the front wall of the room. Two proctors monitored the subjects' compliance with the instructions.

In order to equate for total study time, the last page of the materials for the NOQ group instructed them to read the text two more times. The other groups read the materials only once.

As soon as a subject finished his study materials, a proctor collected them and started the subject on a nonverbal aptitude examination called the Hidden Figures Test (French, 1954), which is a multiple-choice version of the Gottschaldt Figures Test. The purpose of administering this test was to provide a delay between learning and retention testing that would minimize both rehearsal and interference. The total time allotted for finishing both the study materials and the Hidden Figures Test was 55 minutes. The 22 subjects who did not finish within this time allotment--six from the AUTOQUEST group, two from the short-cloze group, and seven from the long-cloze and control groups--were eliminated from the original sample of 356 subjects. However, they were allowed to continue in the experiment.

At the end of the 55-minute study period, a 5-minute break was announced. When the subjects had been re-seated, Part I of the Criterion Test was distributed, the instructions for the test were read aloud, and the test was started. As soon as a subject finished Part I, it was collected and Part 2 of the test was issued. A total of 35 minutes was allotted for both parts of the test, enough for 312 (93%) of the subjects to complete the Criterion Test. Of the 22 (7%) subjects who did not finish the test, 18 were retained in the sample since they had finished more than 40 items. The other four were eliminated. Thus, the final sample size used for analysis was 330.

RESULTS

The results for recruits who finished the instructional materials are summarized in Table 1. As shown, none of the a priori hypotheses about indirect effects were confirmed. The mean score obtained by the NOQ control group on the new questions test was slightly better than that of the human-generated (H) and AUTOQUEST groups, which were about equal. Results of Barlett's F-test showed no significant departure from homogeneity of variance. An a posteriori analysis of all possible comparisons of group differences was performed using the Tukey-B test for multiple comparisons (Winer, 1971, p. 198). Results showed that the performance of the LCZ group was significantly worse ($p < .05$) than that of the H, A, and NOQ groups.

Table 1

Summary Analysis of Five Measures of Reading Performance

		Variable Mean				
Group	N	Minutes of Study	New Questions	Human Questions	AUTOQUEST Questions	Cloze Questions
H	51	35.2	13.2	10.5	7.4	9.8
A	117	34.1	13.2	9.1	8.3	9.4
SCZ	47	37.1	12.6	8.4	7.0	10.1
LCZ	48	37.4	11.5	8.0	6.6	9.8
NOQ	67	34.0	13.4	9.3	7.3	8.9
Within-group Std. Dev.		8.2	3.1	2.3	2.0	2.6
F(4,325)	2.363	3.207	8.073	7.668	1.933	
P	N.S.	<.05	<.001	<.001	N.S.	
Bartlett's F-test	.649	1.038	1.449	1.463	1.788	
Tukey-B ($p < .05$)			LCZ < H,A,NOQ	H > all LCZ < H,A,NOQ	A > all	

Direct effects were observed for the questions repeated from the original human-generated and AUTOQUEST questions but not repeated from the long-cloze questions. The Tukey-B test showed that the mean score obtained by Group H

was significantly higher than that of any other group on the human questions; and that of Group A was significantly higher than that of any other group on the AUTOQUEST questions. Also, the performance of the LCZ group was significantly worse than that of Groups H, A, and NOQ on the human-generated questions.

The magnitudes of the direct effect of human and AUTOQUEST questions were about equal; that is, one-half standard deviation above the NOQ control group.

The variable means of the 22 subjects who did not finish reading the text are presented in Table 2. If these subjects had been included in the main sample, the differences between group means would have been almost exactly the same as they are in Table 1.

Table 2

Characteristics of Unfinished Cases

		Variable Mean			
Group	N	New Questions	Human Questions	AUTOQUEST Questions	Cloze Questions
H	0				
A	6	9.8	6.2	5.5	6.2
SCZ	2	11.0	4.0	6.0	9.0
LCZ	7	9.3	6.9	5.7	8.0
NOQ	7	12.0	8.1	5.6	8.0

From the test skewness parameters shown in Table 3, it can be inferred that most subjects found the tests easy. Every scale was significantly skewed ($p < .0001$) in the negative direction, with coefficients of skewness ranging from -.511 to -.663. The significance tests used in Table 1 are not invalidated by this skewness, for a Monte Carlo study by Boneau (1960) showed that the t-test was highly robust even when the skewness was as large as 2.0. The F-test is similarly robust with respect to skewness (Elashoff, 1968).

The correlations given in Table 3 provide some information concerning the internal consistency and reliability of the tests. All test items were positively correlated with all of the test scales, which were positively correlated with one another. There were no really bad items which could invalidate a test; the worst test-item correlation was +0.197. The correlations of the tests with each other and with the Word Knowledge Aptitude Test (Counselor's Manual, Armed Services Vocational Aptitude Battery, 1973) are given in Table 4. The reliability of the tests, although not measured directly, must be at least as high as their highest correlations.

Table 3

Test Characteristics

Test	Number of Items	Item-Test Correlation Minimum	Item-Test Correlation Maximum	Skewness
New Questions	19	.197	.620	-.511*
Human	13	.225	.583	-.528*
AUTOQUEST	11	.285	.576	-.662*
Cloze	14	.291	.568	-.611*

*p < .0001

Table 4

Correlation Matrix

Test	Wk	Newqs	Test Humqs	AUTOQUEST	Cloze
Word Knowledge	1.000	.343	.338	.319	.372
New Questions		1.000	.681	.568	.588
Human Repeats			1.000	.490	.587
AUTOQUEST				1.000	.543
Cloze					1.000

DISCUSSION

Craik and Lockhart's (1972) levels of processing theory seems to be confirmed by the poor performance of the cloze groups. Evidently cloze questions require so much attention to low-level detail that higher level processing is inhibited. The fact that the performance of the AUTOQUEST group equalled that of the Human-generated question group implies that both syntactic and semantic processing occur at the same level. This finding is consistent with language understanding theories that hold that syntax and semantics are inseparable aspects of an integrated process (Winograd, 1972).

The fact that the AUTOQUEST group performed as effectively as the Human-generation group in this experiment indicates that the AUTOQUEST method may have promise as a practical instructional device. The success of the AUTOQUEST group is all the more impressive in view of the negative mathemagenic effects obtained by the two cloze groups.

The lack of indirect effects for human-generated and AUTOQUEST questions is not completely surprising. Several factors may have contributed to the outcome. First, the reading materials were artificially constructed so as to consist of logically independent factual statements. It may be that indirect effects are easier to obtain when the material forms a network of interrelated concepts, so that adjunct questions and criterion questions address a common conceptual framework at some level of processing.

Secondly, the experiment controlled for study time by having the control group read the material three times. Rothkopf's (1966) original experiment and most of the other experiments in the literature did not control for study times, although they measured times and found that the pace of the control group was only slightly faster than that of the adjunct question groups. However, Corrozi (1970) found that indirect effects disappeared when time constraints were placed on the subject.

This experiment did not test the full AUTOQUEST system in an on-line situation with feedback. It could be argued that feedback will be particularly helpful because it will direct the student to restudy paragraphs to which he did not fully attend on his first reading and will tend to reinforce attentive studying behavior.

CONCLUSIONS

Because it is difficult to obtain reliable indirect effects from adjunct questions, it appears that the best hopes for practical applications of AUTOQUEST depend on the direct effects of inserted questions or on the feedback effects from the grading of student responses. In other words, the inserted questions must focus on the important points of the text and must be relevant to instructional objectives.

RECOMMENDATIONS

The following recommendations for further research are advanced:

1. Better parsing programs and larger dictionaries should be incorporated into AUTOQUEST to increase the number of grammatical questions that can be generated from a page of text.

2. Heuristic procedures should be developed to select instructionally relevant and important questions from the large pool of questions that AUTOQUEST is capable of generating.

3. The instructional effectiveness of AUTOQUEST should be tested in an on-line situation with feedback.

If the educational effectiveness of AUTOQUEST is established, conversion to a minicomputer and operational implementation should be considered. Very large cost savings in training and education could be obtained. AUTOQUEST can be used much more widely than conventional computer-assisted instruction because it does not require long lead times for development or expensive human labor in the preparation of frames.

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APPENDIX A

INSTRUCTIONAL MATERIALS[1]

[1]For compactness, the four different sets of adjunct questions provided to the various experimental groups appear on the same page. However, in the experiment, each experimental group saw only one set of questions.

Form _____

NAME _____

DATE _____

INSTRUCTION MATERIALS

The purpose of this study is to determine how much Navy recruits can learn from reading difficult, unfamiliar material of the type found in college textbooks. While it will not be a disgrace to do poorly, it is important that you study the material very carefully and try to learn as much as you can.

Read each page carefully. Reread difficult parts. After you have read a page, turn it over behind the booklet. Once you have turned a page, do not return to it. After each page, some of you will find some questions about the material on that page. Answer each question before going on to the next page. Sometimes people have an idea what the answer is but are afraid they might be wrong, so they don't answer at all. Wrong answers will not count against your score, SO DO NOT BE AFRAID TO GUESS. Write an answer to every question even if you are very unsure of your answer. DO NOT LEAVE ANY QUESTIONS UNANSWERED.

Some of you will not be given any questions to answer after each page. In that case, read each page carefully and then go on to the next page. Once you have turned a page, you may not return to it.

Study the material thoughtfully and carefully and answer each question completely. Please do not make notes. Please do not make any marks on the reading material. Write your answers on the same sheet where the questions are.

There should be ample time to complete the task if you work consistently and conscientiously.

When you have finished the booklet, write the time on the last page. Then raise your hand and a supervisor will come and take your booklet.

When you finished reading the passage and answering the questions, please raise your hand and a supervisor will come to tell you what to do next.

REMEMBER

1. STUDY EACH PAGE CAREFULLY.
2. DO NOT TURN BACK TO A PAGE ONCE YOU HAVE FINISHED.
3. ANSWER ALL THE QUESTIONS EVEN IF YOU HAVE TO GUESS.
4. WHEN YOU ARE FINISHED WORKING, RAISE YOUR HAND TO CALL A SUPERVISOR.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

The Gruanda: An Anthropological Description

In east central Africa, in the new country of Malikan, lives a handsome tribe of people: the Gruanda. Tall by any standards, the men average above six feet in height and women, approximately five feet and ten inches. Characteristically, they hold themselves erect and present a proud appearance. Their skins are lighter than those of their neighbors, their coloring a light, brown-yellow that might almost be called apricot. As a group, they are uniformly longheaded with a pronounced tendency toward having the lower jaw projecting beyond the upper. Though these jutting jaws are less severe among the darker skinned groups of the eastern desert, those living along the river in the west have this characteristic very strongly.

In keeping with their height, the Gruanda have generally lean bodies. Limbs of both men and women tend to be long and slender, and a fat Gruanda is extremely rare. Adult males usually develop considerable amounts of chest hair and resemble Caucasians in this characteristic. For both sexes, hair is characteristically fine, straight, and uniformly black. It is customarily worn long by both men and women. Women bind their hair with bright woven bands whose colors indicate the wearer's clan membership.

ANSWER THESE QUESTIONS ON YOUR ANSWER SHEET BEFORE CONTINUING. DO NOT LOOK AT THE PREVIOUS PAGE.

Human Generated Questions:

1. The tribesmen average about _____ in height.

2. For both sexes, the hair is characteristically _____ , _____ and black.

AUTOQUEST Questions:

1. What bind their hair with bright woven bands whose colors indicate the wearer's clan membership?

Short-Cloze Questions:

1. Their _____ are lighter than those _____ their neighbors, their coloring _____ light, brown-yellow that might _____ be called apricot.

2. Women bind _____ hair with bright woven _____ whose colors indicate the _____ clan membership.

Long-Cloze Questions:

1. Their skins are _____ than those of their neighbors, their _____ a light, brown yellow that might _____ be called _____.

2. Women bind their hair with bright woven bands whose _____ indicate the _____ clan membership.

ANSWER EACH OF THE QUESTIONS ABOVE EVEN IF YOU HAVE TO GUESS. THERE WILL BE NO PENALTY FOR GUESSING, THEREFORE YOU MUST WRITE SOME ANSWER TO EACH QUESTION.

WHEN YOU HAVE ANSWERED ALL THE QUESTIONS, YOU MAY GO ON TO THE NEXT PAGE.

Gruanda

The Gruanda inhabit a territory which is bounded by a high mountain range to the north, called the Rompin, and by a large river, the Brugen, on the west. Along the southern border, the land is hilly and fertile, and to the east, there is a sandy stretch of plain. In the center of this plain is a desert-like area of sand dunes. In the foothills, there are forests and two large lakes and several smaller ones. Veins of coal are located in the foothills as well as some fairly large deposits of tin, graphite, and zinc. The bluffs along the Brugen river are primarily limestone. Passage through the mountains is possible by way of a pass and alos on the Brugen river, which is navigable. The climate is temperate, with temperatures ranging from an average of 30 degrees Fahrenheit in the winter to an average of 75 degrees Fahrenheit in the summer, except in the eastern plain where the weather tends to be more extreme. There is ample rainfall in autumn and spring in all areas but the eastern plain, where there is very little rain. In order to insure rainfall, the Gruanda perform special rain rituals in the early spring.

The social organization of the Gruanda centers on "star" clans. The clans are related to thirteen of the more prominent stars, such as Venus, Sirius, Rigel, Antares, etc. Each has a specific name and this is also the name of the clan. Each Gruanda is a member of one of the clans and identifies himself strongly with it. The name of his clan star is woven into the given name of each individual to relfect his clan membership. Competition occurs only between clans and not within them, and a tribesman's status is based on his hunting ability and bravery.

ANSWER THESE QUESTIONS ON YOUR ANSWER SHEET BEFORE CONTINUING. DO NOT TURN BACK TO THE PREVIOUS PAGE.

Human Generated Questions:

3. The river which runs through the tribe's land is called the _____.

4. In winter the temperature in the tribe's land averages about _____ degrees.

5. How does a tribesman achieve high status in his society?

6. The social organization of the tribe is based on _____.

AUTOQUEST Questions:

2. What bluffs are primarily limestone?

3. What is passage through the mountains possible by?

4. What does the social organization of the Gruanda center on?

Short-Cloze Questions:

3. In the _____ of this plain is _____ desert-like area of sand _____.

4. The Bluffs along the _____ river are primarily limestone.

5. _____ social organization of the _____ centers on "star" clans.

6. _____ name of his clan _____ is woven into the _____ name of each individual _____ reflect his clan membership.

Long-Cloze Questions:

3. In the _____ of this plain is a desert-like area of sand dunes.

4. The _____ along Brugen are _____ limestone.

5. The _____ organization of the _____ centers on _____ clans.

6. The name of clan star is woven into the given name of each individual to _____ his clan membership.

ANSWER EACH OF THE QUESTIONS ABOVE EVEN IF YOU HAVE TO GUESS. THERE WILL BE NO PENALTY FOR GUESSING, THEREFORE YOU MUST WRITE SOME ANSWER TO EACH QUESTION.

WHEN YOU HAVE ANSWERED ALL THE QUESTIONS, YOU MAY GO ON TO THE NEXT PAGE.

Gruanda

Membership in his clan is a matter of great significance to each individual and a fact of which he is openly proud. This membership is hereditary. It decends matrilineally, or, in other words, it is determined by the clan membership of the mother. Belonging to a clan entails certain obligations and governs certain forms of social behavior. For example, only his clan members are allowed to prepare a dead Gruanda's body for cremation and light his funeral pyre. Similarly, only clan members are permitted to help in preparing a young couple for the wedding ceremonies. Adult men always sleep in their clan house, although women stay in their individual dwellings. Also, the interaction of the various clans in a multitude of tribal affairs is governed by rigid rules related to the seasonal position of the clans' stars. Each clan is ruled by a headman. This position is the prerogative of the oldest, male clan member.

The legends and traditions of the Gruanda center upon the horned Sand-Beetle which abounds locally. It is reputed to have been the first living creature and responsible for the development of all others. It is not clear in the traditional tales whether the Sand-Beetle actually created all other forms of life, or whether he merely caused them to develop. Creation itself, the Gruanda say, took place when all the water drained out of the sand. Presumably, before this separation, land and water were a formless mixture. After the dry land had appeared, it was possible for the Sand-Beetle to emerge.

ANSWER THESE QUESTIONS ON YOUR ANSWER SHEET BEFORE CONTINUING. DO NOT TURN BACK TO THE PREVIOUS PAGE.

Human Generated Questions:

7. Describe the tribe's family system.

8. When did the legends and traditions of the tribe begin?

Autoquest Questions:

5. What are only clan members permitted to do?

6. What do adult men always sleep in although women stay in their individual dwellings?

7. What is each clan ruled by?

Short Cloze Questions:

7. _____ membership is hereditary.

8. The _____ and traditions of the _____ center upon the horned _____ which abounds locally.

Long Cloze Questions:

7. This _____ is hereditary.

8. The _____ and traditions of the _____ center upon the horned _____ which abounds _____.

ANSWER EACH OF THE QUESTIONS ABOVE EVEN IF YOU HAVE TO GUESS. THERE WILL BE NO PENALTY FOR GUESSING, THEREFORE YOU MUST WRITE SOME ANSWER TO EACH QUESTION.

WHEN YOU HAVE ANSWERED ALL QUESTIONS, YOU MAY GO ON TO THE NEXT PAGE.

Gruanda

A Gruanda's most important and prized possession is a cloak of Buama skin. Evidently this skin has magic powers which render its wearer secure from all harm. There is also a suggestion that it confers immortality.

After their own deaths the Gruanda expect to join the legion of ancestrial ghosts. These ghosts are revertently worshipped. They are believed to aid the Sand-Beetle in regulating the world. They also serve as his emissaries, making nocturnal visits to the living in order to protect them while they sleep. During the day, the ancestral ghosts are believed to live in the sacred Night Cave in the mountains.

ANSWER THIS QUESTION ON YOUR ANSWER SHEET BEFORE CONTINUING. DO NOT TURN BACK TO THE PREVIOUS PAGE.

Human Generated Questions:

9. What objects do the tribesmen carry around as symbols of their belief in the tribe's God?

AUTOQUEST Questions:

GO ON TO THE NEXT PAGE

Short Cloze Questions:

9. After _____ own deaths the Gruanda _____ to join the legion _____ ancestral ghosts.

Long Cloze Questions:

9. After their own deaths _____ expect to join the _____ of ancestral _____.

ANSWER THE ABOVE QUESTION EVEN IF YOU HAVE TO GUESS. THERE WILL BE NO PENALTY FOR GUESSING, THEREFORE YOU MUST WRITE SOME ANSWER TO THE QUESTION.

WHEN YOU HAVE ANSWERED THE QUESTION, YOU MAY GO ON TO THE NEXT PAGE.

Gruanda

The ceremonies and rituals of the Gruanda are related mainly to certain major occasions in their lives. There are four rituals based on the Gruanda's personal events and one general ritual.

Following the birth of a child, the child is presented to the Sand-Beetle at a baptism held at a specified sandy bank of the Brugen River. When a child reaches puberty, it receives a tattoo to mark its adult status. Tattoos are placed on the ofrehead and upper arms to the accompaniment of drums and a rhythmic, stamping dance. Thereafter the individual is at least nominally entitled to participate in the village government and tribal affairs.

ANSWER THIS QUESTION ON YOUR ANSWER SHEET BEFORE CONTINUING. DO NOT TURN BACK TO THE PREVIOUS PAGE.

Human Generated Questions:

10. Shortly after birth, a child is baptized in the _____.

AUTOQUEST Questions:

8. What are there four rituals based on?

Short Cloze Questions:

10. The ceremonies _____ rituals of the Gruanda _____ related mainly to certain _____ occasions in their lives.

Long Cloze Questions:

10. The ceremonies and _____ of the Gruanda are _____ mainly to _____ major occasions in their lives.

ANSWER THE ABOVE QUESTION EVEN IF YOU HAVE TO GUESS. THERE WILL BE NO PENALTY FOR GUESSING, THEREFORE YOU MUST WRITE SOME ANSWER TO THE QUESTION.

WHEN YOU HAVE ANSWERED THE QUESTION, YOU MAY GO ON TO THE NEXT PAGE.

The third major event in a Gruanda's life is his marriage. Before a young man is permitted to marry, he is required to perform a feat of daring. Most often, this involves the stalking and slaying of a dangerous animal while armed only with a knife. Anyone familiar with the ferocious character of a wild boar will appreciate the bravery of such an undertaking. Bravery alone, however, is not enough for such feats unless it is combined with very great hunting skill. Completion of the feat coincides with the wedding ceremony during which there is much merriment, dancing, and singing.

Upon the death of a tribe member, the last of the rituals takes place. The ceremony takes place in the Night Cave. His body is placed on a funeral pyre, around which the adult villagers assemble in a circle and perform a funeral chant. They wail and shout throughout the night. When the sun rises, the pyre is lit and the body is cremated.

ANSWER THESE QUESTIONS ON YOUR ANSWER SHEET BEFORE CONTINUING. DO NOT TURN BACK TO THE PREVIOUS PAGE.

Human Generated Questions:

11. What must a tribesman do before he is permitted to marry?

12. Upon the death of a tribe member the last of the personal rituals take place and consists of a long procession and ceremonial _____ in the mountain cave.

AUTOQUEST Questions:

9. What will anyone familiar with the ferocious character of a wild boar appreciate?

Short Cloze Questions:

11. Completion _____ the feat coincides with _____ wedding ceremony during which _____ is much merriment, dancing, _____ singing.

12. The _____ takes place in the _____ Cave.

Long Cloze Questions:

11. _____ of the feat coincides with the _____ ceremony, _____ which there is much merriment, _____, and singing.

12. The _____ takes place in the Night Cave.

ANSWER EACH OF THE QUESTIONS ABOVE EVEN IF YOU HAVE TO GUESS. THERE WILL BE NO PENALTY FOR GUESSING, THEREFORE YOU MUST WRITE SOME ANSWER TO EACH QUESTION.

WHEN YOU HAVE ANSWERED ALL THE QUESTIONS, YOU MAY GO ON TO THE NEXT PAGE.

Gruanda

The only ceremony of the Gruandas not related to major events in the lives of persons is the Celebration of the Full Moon. Every occurrence of a full moon signals a night of festivities during which everyone joins in elaborate dancing, feasting, and singing. As at all ceremonies and rituals, a delicious fruit, the guava, is served abundantly.

Basically, overall government over the Gruanda rests with the Tribal Council consisting of the elder shiefs. The Tribal Council has an advisor assigned to it by the national government who seeks to assure basic compliance with public law. Otherwise the council is the supreme executive and legislative body of the tribe. It rules on all matters affecting the tribe as a whole. Locally, the executive powers are in the hands of the chiefs. It is their task to administer the affairs of the village which they govern. This includes the planning of ceasonal activities and the direction of communal enterprises such as the digging of wells or the erection of new houses. While chiefs are not popularly elected, the office is rotated among several eligible individuals. The rotation has the effect of bringing different views and emphases to bear on the management of local affairs. The decision to rotate and the selection from among the eligibles is made by the elder chiefs of the Tribal Council.

ANSWER THIS QUESTION ON YOUR ANSWER SHEET BEFORE CONTINUING. SO NOT TURN BACK TO THE PREVIOUS PAGE.

Human Generated Questions:

13. How is the tribe's local government structured?

AUTOQUEST Questions:

10. What is the only ceremony of the Gruandas not related to major events in the lives of persons?

11. What does overall government over the Gruanda rest with?

12. What is the office rotated among while chiefs are not popularly elected?

Short Cloze Questions:

13. The Tribal Council _____ an advisor assigned to _____ by the national government _____ seeks to assure basic _____ with public law.

Long Cloze Questions:

13. The Tribal _____ has an advisor _____ to it by the national _____ who seeks to assure basic _____ with public law.

ANSWER EACH OF THE QUESTIONS ABOVE EVEN IF YOU HAVE TO GUESS. THERE WILL BE NO PENALTY FOR GUESSING, THEREOFRE YOU MUST WRITE SOME ANSWER TO EACH QUESTION.

WHEN YOU HAVE ANSWERED ALL THE QUESTIONS, YOU MAY GO ON TO THE NEXT PAGE.

Gruanda

Locally the executive and judicial functions are separated. The latter are in the hands of the Nostaw, i.e., judges, who are regarded as having a special gift of being able to discern the true state of affairs. All matters of dispute are referred to them for a ruling and these rulings are always obeyed. The only govermental function that is not locally or tribally administered is the matter of tax collection. This is handled through tax collectors appointed directly by the national government. Payment is usually made in wheat and beets.

Hunting is the major activity of the Gruanda people, and hunters form the largest occupational group in Gruandan society. At some times there are scarcely any men to be found in the villages. All necessary chores are left to the women, while the men go on hunts. Village life slows to a virtual standstill until they return. Although only the adult males engage in hunting, the popularity of the activity is based on a fondness for the taste of game that is shared by all the people.

ANSWER THESE QUESTIONS ON YOUR ANSWER SHEET BEFORE CONTINUING. DO NOT TURN BACK TO THE PREVIOUS PAGE.

Human Generated Questions:

14. How are the tribe's judges chosen?

15. The largest occupational group in the tribe is composed of _____.

AUTOQUEST Questions:

13. What is payment usually made in?

14. What are all necessary chores left to while the men go on hunts?

Short Cloze Questions:

14. Locally _____ executive and judicial functions _____ separated.

15. At some times _____ are scarcely any men _____ be found in the _____.

Long Cloze Questions:

14. _____ the executive and _____ functions are _____.

15. At some times there are scarcely any men to be found in the _____.

ANSWER EACH OF THE QUESTIONS ABOVE EVEN IF YOU HAVE TO GUESS. THERE WILL BE NO PENALTY FOR GUESSING, THEREFORE YOU MUST WRITE SOME ANSWER TO EACH QUESTION.

WHEN YOU HAVE ANSWERED ALL THE QUESTIONS, YOU MAY GO ON TO THE NEXT PAGE.

In the Fall of the year boar (wild pig) is hunted. Later in the year, the more agile young men hunt rabbits as much for the sport and the skins as for meat. The Guranda prefer to hunt both pigs and rabbits with crossbows, because they believe that the noise of firearms frightens the game and makes stalking more difficult. Other animals that are hunted are various species of birds. Birds are prized for their plumage. The value of a specimen is greatly depreciated if the plumage is slightly damaged. For this reason nets and traps are mainly used in hunting birds. Feathers of the rare Sagrole bird are especially valued and kept much as Westerners keep stags' antlers or other hunting trophies. These brids have always been rare and their feathers are difficult to obtain. They are now near extinction, since no laws protect them and wildlife conservation is beyond the understanding of the Gruanda.

The agriculture of the Gruanda is diversified, although their farming implements are still fairly primitive. They have developed a simple stick-plow which they hitch to an ox or a buffalo. Each Gruanda village has several community farming plots which are worked by the local villagers--both men and women. During the growing season the villagers work in these plots from dawn till dusk. As it is for farmers everywhere, this is the season of hard labor. For the Gruanda that task is of even more than ordinary difficulty due to the primitive nature of their farming tools. The most important crop is wheat, which is used as a basic ingredient for many of the Gruanda dishes. The Gruanda make a flat bread from wheat.

ANSWER THESE QUESTIONS ON YOUR ANSWER SHEET BEFORE CONTINUING. DO NOT TURN BACK TO THE PREVIOUS PAGE.

Human Generated Questions:

16. A group of English hunters on a safari wandered onto the tribe's land while chasing a small wild pig. The hunters tried to scare the animal out of a tree by firing into the tree. The tribesmen were excited because . . . (Why?)

17. The basic food of the tribe is _____.

AUTOQUEST Questions:

15. What are birds prized for?

16. What make a flat bread from wheat?

Short Cloze Questions:

16. The value of a _____ is greatly depreciated if _____ plumage is slightly damaged.

17. _____ the growing season the _____ work in three plots _____ dawn till dusk.

Long Cloze Questions:

16. The value of a specimen is _____ depreciated if the _____ is slightly _____.

17. During the _____ season the _____ work in these plots from dawn]ill dusk.

ANSWER EACH OF THE QUESTIONS ABOVE EVEN IF YOU HAVE TO GUESS. THERE WILL BE NO PENALTY FOR GUESSING, THEREFORE YOU MUST WRITE SOME ANSWER TO EACH QUESTION.

WHEN YOU HAVE ANSWERED ALL THE QUESTIONS, YOU MAY GO ON TO THE NEXT PAGE.

Other significant crops include beets, from which they extract sugar, barley, and several varieties of squash. The Gruanda eat the squash as a vegetable, and also ferment certain types of squash to provide a strong beer called Polef. Oxen and buffalo are raised to serve primarily as work animals. Milk is obtained mainly from goats, which are grazed freely throughout the country. A strain of small, wiry cattle is also kept, but the Gruanda are not well versed in techniques of cattle raising, nor can they affort to feed that cattle well. The meat in the Gruanda diet comes from wild pig and rabbit felled by the hunters. In earlier times the Gruanda counted heavily upon gathering wold fruits and nuts for subsistence, but now that they have improved methods of farming they gather fruits and nuts only as a supplement to their diet. Guavas are harvested and served at all rituals and celebrations.

The manufactured products of the Gruanda consist mainly of simple household articles. Pottery of all sizes and shapes is made by the women. The utensils used for the preparation and storage of food are primarily made of pottery. Although the pottery products are neither particularly colorful, not particularly beautiful, the paskets produced by the Gruanda are very much admired. Baskets are produced by both men and women. Various grasses and reeds differing in color as well as thickness are woven into variegated patterns and textures.

ANSWER THESE QUESTIONS ON YOUR ANSWER SHEET BEFORE CONTINUING. DO NOT TURN BACK TO THE PREVIOUS PAGE.

Human Generated Questions:

18. The tribe serves _____ at every ritual.

19. The tribe makes a beer called-- _____.

AUTOQUEST Questions:

17. What is milk obtained mainly from?

18. What do the manufactured products of the Gruanda consist mainly of?

19. What are baskets produced by?

Short Cloze Questions:

18. In _____ times the Gruanda counted _____ upon gathering wild fruits _____ nuts for subsistence, but _____ that they have improved _____ of farming they gather _____ and nuts only as _____ supplement to their diets.

19. _____ are produced by both _____ and women.

Long Cloze Questions:

18. In earlier times, the _____ counted _____ upon gathering wild _____ and nuts for subsistence, but now that they have _____ methods of _____ they gather _____ and nuts only as a supplement to their diet.

19. _____ are produces by both men and women.

ANSWER EACH OF THE QUESTIONS ABOVE EVEN IF YOU HAVE TO GUESS. THERE WILL BE NO PENALTY FOR GUESSING, THEREFORE YOU MUST WRITE SOME ANSWER TO EACH QUESTION.

WHEN YOU HAVE ANSWERED ALL THE QUESTIONS, YOU MAY GO ON TO THE NEXT PAGE.

Gruanda

The clothing worn by the Gruanda is made from a cloth that is woven from the natural fibers of reeds that grow along the rivers. One product which is made for decoration is bead jewelry. The bead jewelry is worn by the women. Normally the labor required for the manufacture of these various products is provided by the older men and women. Manufacture is still not a major factor in Gruanda society and its economy. Therefore, the labor-force is recruited from among those who can least contribute to toher pursuits. There are no production facilities and all manufacturing activity is in terms of individual efforts.

The Gruanda's trade system allows for exchanging commodities both by bartering and by selling. The unit of exchange used in selling is a special kind of colored stone disk. The Gruanda have established relative standards for the buying powers of these stones, that is, there is a fixed number of disks required as payment for all the items that are bought and sold. Exchanges are negotiated between private individuals and also by way of traveling traders. These traders transport their goods on carts pulled by oxen for great distances, visiting all the villages in the country. Their mobility makes it possible to secure various commodities which are not available to every village and to dispense these where they are needed. External trade is conducted with the neighboring Gokem tribe. The traveling traders purchase several prized items from the Gokem and the Latuk, particularly medicinal plants, wine, and a hard cider.

ANSWER THIS QUESTION ON YOUR ANSWER SHEET BEFORE CONTINUING. DO NOT TURN BACK TO THE PREVIOUS PAGE.

Human Generated Questions:

20. How do the tribesmen exchange goods among themselves?

AUTOQUEST Questions:

20. What is the labor force recruited from among?

Short Cloze Questions:

20. Therefore, the _____ is recruited from among _____ who can least contribute _____ other pursuits.

Long Cloze Questions:

20. _____, the labor-force is _____ from among those who can least contribute to other _____.

ANSWER THE ABOVE QUESTION EVEN IF YOU HAVE TO GUESS. THERE WILL BE NO PENALTY FOR GUESSING, THEREFORE YOU MUST WRITE SOME ANSWER TO THE QUESTION.

WHEN YOU HAVE ANSWERED THE QUESTION, YOU MAY GO ON TO THE NEXT PAGE.

STOP

YOU HAVE FINISHED THIS PART.

NOW WRITE THE NUMBER WRITTEN ON THE BOARD IN THE SPACE BELOW.

NUMBER _____

NOW CLOSE YOUR BOOKLET. THEN RAISE YOUR HAND AND THE SUPERVISOR WILL COME AND TELL YOU WHAT TO DO NEXT.

APPENDIX B

CRITERION TEST

CRITERION TEST

Part 1

This is a test of your knowledge of the passages you have just read. There are eighty multiple-choice questions. Answer each question on the answer sheet by filling in one of the circles. Use the "A" side of the answer sheet. With your pencil, fill in the circle corresponding to your answer. Choose the answer which best matches the exact words of the original passage.

Wrong answers will not count against you, SO YOU SHOULD ATTEMPT TO ANSWER EVEN IF YOU HAVE TO GUESS. DO NOT LEAVE ANY QUESTIONS UNANSWERED.

EXAMPLE:

Characteristically they hold themselves erect and present a _____ appearance.

A. Dull
B. Happy
C. Proud
D. Hostile

SAMPLE ANSWER SHEET

A.	B.	C.	D.	E.
O	O	●	O	O

If you understand these directions, you may go on to the second part of the test.

If you have questions about the procedure, raise your hand and a supervisor will help you.

1. Membership in clans is determined by _____.

   A. The membership of both father and mother.
   B. Selection on the basis of bravery and hunting skill.
   C. The membership of the father.
   D. The membership of the mother.

2. The clothing worn by the Gruanda is made primarily from _____.

   A. Cloth woven from reeds.
   B. Nothing - no clothes are worn
   C. Animal skins.
   D. Large leaves sewn together with vines.

3. The Gruanda have protruding _____.

   A. Eyebrows
   B. Lower jaws
   C. Ears
   D. Noses

4. Wild boar is hunted mainly in _____.

   A. Summer
   B. Winter
   C. Fall
   D. Spring

5. The Gruanda hitch their plows to _____.

   A. Mules
   B. Horses
   C. Tractors
   D. Oxen

6. The Gruanda extract sugar from _____.

   A. Cane
   B. Fruit
   C. Beets
   D. Squash

7. The length of hair for the Gruanda is _____.

A. Short for both men and women
B. Short for women, long for men
C. Long for both men and women
D. Short for men, long for women

8. The utensils used for the preparation and storage of food are primarily made of _____.

A. Pottery
B. Stone
C. Tin
D. Carved wood

9. The Gruanda perform special _____ rituals in the early spring.

A. Rain
B. Fertility
C. Hunting
D. War

10. In order to render himself secure from harm, a Gruanda will wear _____.

A. A feather of the Sagrole bird
B. A cloak of Buama skin
C. A wild boar's foot
D. A necklace of beads

11. The foothills contain fairly large deposits of _____.

A. Iron
B. Zinc
C. Sulpher
D. Uranium

12. Tax collection is administered by _____.

A. The national government
B. The village chief
C. The Nostaw
D. The tribal council

13. The Gruanda purchase medicinal plants, wine, and liquor from the _____.

A. Pygmies
B. Watusi
C. Goken
D. Himootians

14. Each Gruanda identifies himself strongly with one of the _____.

A. Sacred animals
B. Ancestral ghosts
C. Star clan
D. Hunting parties

15. During the day, the ancestral ghosts are believed to live in _____.

A. One of the thirteen more prominent stars
B. The Brugen river
C. The forests
D. The Night Cave in the mountains

16. At the funeral of a tribe member, the villagers _____.

A. Dance around the funeral pyre
B. Sacrifice a wild boar
C. Wail and shout throughout the night
D. Bathe in the sacred river waters

17. The decision to rotate the office of chief is done by _____.

A. The national government
B. The elder chiefs of the Tribal Council
C. Election by the people
D. The Nostaw

18. When a child reaches puberty, it receives a _____ to mark its adult status.

A. Tattoo on the forehead and upper arm
B. Hunting knife
C. Cloak of Buama skin
D. Baptism at a specified sandy bank of the Brugen river.

19. The clan is ruled by _____.

A. The oldest female member
B. The strongest fighter
C. The oldest male member
D. An elected chief

20. Which area is hilly and fertile?

A. The southern part
B. The western part
C. The eastern part
D. The northern part

CRITERION TEST

Part 2

21. How do the tribesmen exchange goods among themselves?

A. By equal distribution
B. By giving the best hunters first choice
C. By use of stone discs which serve as money
D. By having the merchant clan sell the goods

22. What does the social organization of the Gruanda center on?

A. Religious sects
B. Tribal dances
C. "Star" clans
D. "Tree" clans

23. Their skins are lighter than those of their neighbors, their coloring a light, brown-yellow that might almost be called _____.

A. Golden
B. Orange
C. Hazel
D. Apricot

24. How does a tribesman achieve high status in his society?

A. By being a member of the boat-building clan
B. By being selected to be a Nostaw
C. By being a good craftsman
D. By being a brave hunter

25. What is the labor force recruited from among?

A. Young men upon reaching puberty
B. Those who can least contribute to other pursuits
C. The most able members of the tribe
D. Young women upon reaching puberty

26. The _____ along the Burgen are primarily limestone.

A. Caves
B. Bluffs
C. Mountains
D. Houses

27. The tribe has a complex clan system which is based on _____.

A. Stars
B. Clan membership of mother
C. Occupation
D. Clan membership of grandparents

28. What are there four rituals based on?

A. The phases of the moon
B. The Sand Beetle
C. The Gruanda's personal events
D. The four seasons

29. The legends and traditions of the Gruanda center upon the horned _____ which abounds locally.

A. Wild boar
B. Sagrole
C. Toad
D. Sand Beetle

30. A group of English hunters on a safari wandered onto the tribe's land while chasing a small wild animal. The animal took refuge in a teak tree. The hunters tried to scare the animal out by firing into the tree. The tribesmen were excited because _____.

A. The sand beetles thrive in teak trees
B. The firing would scare the game
C. They feared the tree might be hurt
D. The moon god, or Kupod, is said to live in the forest

31. What is each clan ruled by?

A. The witch doctor
B. The headman
C. The oldest woman member
D. The council of elders

32. During the _____ season, the villagers work in these plots from dawn till dusk.

A. Winter
B. Growing
C. Dry
D. Hunting

33. Shortly after birth, a child is baptized in the _____.

A. Rompin mountains
B. Kaysen river
C. Volvap forest
D. Brugen river

34. What do adult men always sleep in although women stay in their individual dwellings?

A. Trees
B. The nude
C. Fur blankets
D. Clan houses

35. In earlier times, the Gruanda counted heavily upon gathering wild fruits and nuts for subsistence, but now that they have improved methods of _____ they gather fruits and nuts only as a supplement to their diet.

A. Hunting
B. Trade
C. Manufacture
D. Farming

36. The tribesmen average about _____ in height.

A. Five feet, four inches
B. Five feet, two inches
C. Five feet, ten inches
D. Six feet, one inch

37. What are only clan members permitted to do?

A. Speak at meetings
B. Marry
C. Hunt
D. Prepare a dead Gruanda's body for cremation

38. _____ are produced by both men and women.

A. Pottery products
B. Baskets
C. Utensils
D. Dishes

39. The river which runs through the tribe's land is called the _____.

A. Quipson
B. Brugen
C. Gokem
D. Kaysen

40. What do the manufactured products of the Gruanda consist mainly of?

A. Clothing
B. Simple household articles
C. Carved ivory
D. Jewelry made of beads

41. After their own deaths the Gruanda expect to join the legion of ancestral _____.

A. Ghosts
B. Warriors
C. Totem poles
D. Graves

42. The basic food of the tribe is _____.

A. Wheat
B. Rice
C. Fish
D. Wild pig

43. What is milk obtained mainly from?

A. Oxen
B. Goats
C. Coconuts
D. Cows

44. The ceremonies and _____ of the Gruanda are related mainly to certain major occasions in their lives.

A. Dances
B. Customs
C. Beliefs
D. Rituals

45. Describe the tribe's family system.

A. Gruandian girls live with their mother, boys with their fathers in separate huts connected by a "porch."
B. The children live with their grandparents in a hut near their parents' hut.
C. The mothers live with their children; the fathers live separately in clan houses.
D. Each family has its own room in one of the 13 clan houses.

46. What make a flat bread from wheat?

A. The Gruanda
B. The Nostaw
C. The witch doctors
D. The village chiefs

47. Completion of the feat coincides with the _____ ceremony during which there is much merriment, dancing, and singing.

A. Baptism
B. "Star"
C. Wedding
D. Puberty

48. How is the tribe's local government structured?

A. Local government is handled with utmost informality, with little permanent structure.
B. The tax collector appointed by the national government controls the government
C. Government is controlled by the Nostaws
D. Government rests with the Tribal Council consisting of elder chiefs.

49. Therefore, the labor-force is recruited from among those who can least contribute to other _____.

A. People
B. Charities
C. Pursuits
D. Ceremonies

50. The value of a specimen is greatly depreciated if the _____ is slightly damaged.

A. Ivory
B. Head
C. Fur
D. Plumage

51. The tribe makes a beer called _____.

A. Polef
B. Zumap
C. Brugen
D. Kaysen

52. What is the only ceremony of the Gruanda not related to major events in the lives of persons?

A. The rain dance
B. The Festival of Spring
C. The Celebration of the Full Moon
D. The Rites of the New Year

53. At some times there are scarcely any men to be found in the _____.

A. Jungle
B. Clan houses
C. Villages
D. River

54. The tribe serves _____ at every ritual.

A. Mangos
B. Guavas
C. Fish
D. Wild pig

55. What will anyone familiar with the ferocious character of a wild boar appreciate?

A. The bravery of such an undertaking
B. The beginning of the hunting season
C. The end of the hunting season
D. The taste of wild boar meat

56. Locally the executive and judicial functions are _____.

A. Combined
B. Neglected
C. Separated
D. Appointed

57. In winter the temperature in the tribe's land averages _____ degrees.

A. 75
B. 70
C. 40
D. 30

58. What bind their hair with bright woven whose colors indicate the wearer's clan membership?

A. The women
B. The men
C. The elder tribesmen
D. The children

59. In the _____ of this plain is a desert-like area of sand dunes.

A. Northern part
B. Periphery
C. Eastern section
D. Center

60. For both sexes, the hair is characteristically _____, _____, and black.

A. Fine, straight
B. Fine, curly
C. Thick, straight
D. Thick, curly

61. What is passage through the mountains possible by?

A. A pass
B. The Brugen river
C. Both (1) and (2)
D. Skilled mountain climbers

62. The social organization of the Gruanda centers on _____ clans.

A. Star
B. Tree
C. Animal
D. Religious

63. What objects do the tribesmen carry around as symbols of their belief in the tribe's God?

A. Cloaks of Buama skin
B. Small stone statuettes
C. Feathers of the Sagrole bird
D. Round, red, smooth stones

64. What is the office rotated among while chiefs are not popularly elected?

A. The women of the tribe
B. Members of different clans
C. The Nostaw
D. Several eligible individuals

65. The _____ takes place in the Night Cave.

A. Celebration
B. Wedding
C. Ceremony
D. Burial

66. How are the tribe's judges chosen?

A. Judges are selected at random
B. Some men, called Nostaw, who are said to have special gifts for settling disputes, serve as judges.
C. Leaders of work crews serve as judges on a rotating basis.
D. Members of the Tribal Council serve as judges.

67. What are baskets produced by?

A. Women
B. A method similar to Indian weaving
C. Both women and men
D. Specialized craftsmen

68. Women bind their hair with bright woven bands whose _____ indicate the wearer's clan membership.

A. Lengths
B. Shapes
C. Styles
D. Colors

69. What must a tribesman do before he is permitted to marry?

A. Demonstrate progress with his work
B. Serve as a leader of a work crew
C. Obtain a cloak of Buama skin
D. Stalk a wild boar

70. What are all necessary chores left to while the men go on hunts?

A. Children
B. Later
C. Women
D. Ancestral ghosts

71. The name of his clan star is woven into the given name of each individual to _____ his clan membership.

A. Reflect
B. Conceal
C. Supplement
D. Honor

72. Most of the legends and traditions of the tribe began when _____.

A. The red, round, smooth stones were first found on the river bank.
B. The sacred Night Cave was discovered.
C. All of the water drained out of the sand where the sand beetle lives.
D. A group of ruby-hunters got lost in the caves.

73. What bluffs are primarily limestone?

A. The bluffs along the Brugen river.
B. The bluffs above the lakes
C. The eastern bluffs
D. The Rompin mountains

74. The Tribal Council has an advisor assigned to it by the national _____ who seeks to assure basic compliance with public law.

A. Medical board
B. Government
C. Tax bureau
D. Police

75. The largest occupational group in the tribe is composed of _____.

A. Fishermen
B. Farmers
C. Hunters
D. Forestors

76. What are birds prized for?

A. Their ability to carry messages
B. Their songs
C. Their plumage
D. Their taste

77. What does overall government over the Gruanda rest with?

A. The Tribal Council
B. The headman
C. The clans
D. The Nostaw

78. Upon the death of a tribe member, the last of the personal rituals takes place and consists of a long procession and ceremonial _____.

A. Burial in the mountain cave.
B. Burial near the Kaysen river.
C. Cremation in the Rompin mountains.
D. Cremation in the mountain cave.

79. What is tax payment uusually made in?

A. Wheat and beets
B. Colored stone discs
C. Sagrole
D. Cattle

80. This _____ is hereditary.

A. Disease
B. Membership
C. Privilege
D. Characteristic

APPENDIX C

SCORING KEYS

SCORING KEYS

N = New Questions, H = Human-Generated, A = Autoquest, Z = Cloze

Item	Answer	Scale	Item	Answer	Scale	Item	Answer	Scale	Item	Answer	Scale
1	D	N	21	C	H	41	A	Z	61	C	A
2	A	N	22	C	-	42	A	H	62	A	-
3	B	N	23	D	Z	43	B	A	63	A	-
4	C	N	24	D	H	44	D	-	64	D	A
5	D	N	25	B	-	45	C	-	65	C	-
6	C	N	26	B	-	46	A	A	66	B	H
7	C	N	27	A	-	47	C	Z	67	C	-
8	A	N	28	C	-	48	D	-	68	D	Z
9	A	N	29	D	Z	49	C	-	69	D	H
10	B	-	30	B	H	50	D	Z	70	C	A
11	B	N	31	B	A	51	A	H	71	A	Z
12	A	N	32	B	Z	52	C	-	72	C	H
13	C	N	33	D	-	53	C	Z	73	A	-
14	C	N	34	D	-	54	B	H	74	B	Z
15	D	N	35	D	Z	55	A	A	75	C	H
16	C	N	36	D	H	56	C	Z	76	C	A
17	B	N	37	D	A	57	D	H	77	A	-
18	A	N	38	B	-	58	A	-	78	D	-
19	C	N	39	B	-	59	D	Z	79	A	A
20	A	N	40	B	A	60	A	H	80	B	Z

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